

SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found in claim 4 as originally presented. Support for claims 7-8 is found on page 4, lines 15-18 of the specification. Support for claim 9 is found on page 8, lines 1-2 of the specification. Support for claims 10-13 is found on page 8, lines 13-17 of the specification. Support for claims 14-15 is found on page 9, lines 11-14 of the specification. Support for claim 16 is found on page 16, lines 12-15 of the specification. Support for claim 17 is found on page 16, lines 16-17 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1-3 and 5-17 will now be active in this application.

REQUEST FOR RECONSIDERATION

The claimed invention is directed to a water-based ink comprising an aqueous dispersion of polymer particles of a water-insoluble polymer having an alkyl group of at least 20-30 carbon atoms on its side chain and an acid value of 30-120 mgKOH/g, and a hydrophobic dye.

Water-based inks have become popular for use in inkjet recording. The use of permeability controlling agents such as water-soluble organic solvents can lead to degradation of the aqueous dispersion as well as extraction of the dye from the dye-containing polymer. Accordingly, water-based inks comprising aqueous dispersions of polymer particles having good stability in the presence of a permeability controlling agent are sought.

The claimed invention addresses this problem by providing a water-based ink comprising an aqueous dispersion of polymer particles of a water-insoluble polymer having C₂₀₋₃₀ alkyl groups on its side chain and an acid value of 30-120 mgKOH/g, and a

hydrophobic dye. Applicant has discovered that such a water-insoluble polymer provides for a water-based ink of good stability. Such a water-based ink is nowhere disclosed or suggested in the cited prior art of record.

Applicant notes that the cited references of Sakakibara et al., U.S. 2002/0132942 has an earliest U.S. filing date of December 2, 2003, after the date of filing of Applicant's Japanese priority document of December 2, 2002. In order to perfect Applicant's claim to priority, Applicant encloses herewith a certified English translation of JP 2002-382311. A certified copy of Applicant's priority document was submitted on December 23, 2003. Applicant respectfully requests the full benefit to priority to JP 2002-382311. Any rejection base on this reference should be withdrawn.

The rejections of claim 4 under 35 U.S.C. §103(a) over Nguyen et al., U.S. 5,990,202 or Gore et al., U.S. 2003/0055197 in view of Zhu, U.S. 5,889,083 and over the combination of Nguyen et al. in view of Chen, U.S. 6,764,173 in further view of Zhu are respectfully traversed.

None of the cited references disclose or suggest a polymer particle of a water-insoluble polymer having an alkyl group of at least 20-30 carbon atoms in its side chain and an acid value of 30-120 mgKOH/g.

The official action at pages 4 and 5 recognizes the deficiencies of the primary references as **failing to teach an acid number as claimed**. The official action relies on Zhu for describing a polymer possessing an acid number of from 20-500 cited in the disclosure at column 4, lines 47-54 and column 5, lines 1-7.

Applicant respectfully submits that this disclosure provides no suggestion of the polymer of a **polymer particle** having an acid value of from 30-120 mgKOH/g and therefore does not render obvious the claimed invention. More specifically, the passage cited by the Examiner describes a binder resin (column 4, line 49) and that the binder resin may form a

true solution of a colloidal suspension (column 4, lines 57-58 of the specification). The use of such a resin in the form of a solution as a film former binding resin provides no motivation to use such a polymer in particulate form comprising a hydrophobic dye.

In contrast, the claimed invention is directed to a water-based ink comprising an aqueous dispersion of polymer particles wherein the polymer particles comprise a water-insoluble polymer having an alkyl group of 20-30 carbon atoms in its side chain and an acid value of 30-120 mgKOH/g and a hydrophobic dye. Applicant notes that the claims have been amended to recite that the water-insoluble polymer is in the form of a polymer particle and that the polymer has an acid value of 30-120 mgKOH/g. As the cited reference fails to disclose or suggest this claim limitation, claims which recite an acid value of 30-120 mgKOH/g are not rendered obvious by this combination of references and accordingly withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

The rejection of claims 1-6 under 35 U.S.C. §103(a) over Lau et al., U.S. 2003/0149133 in view of Chen et al., U.S. 6,764,173 is respectfully traversed.

Each of the cited references fails to disclose or suggest a water-based ink comprising polymer particles of a water-insoluble polymer having an alkyl group of at least 20-30 carbon atoms and an acid value of 30-120 mgKOH/g.

Lau et al. describes an ink composition comprising a colorant and a polymeric binder, the polymer binder comprising 5-100 wt.% of a hydrophobic monomer and/or fluorinated monomer, 0-85 wt.% of at least a second monomer and 0-10% by weight of at least one acidic monomer or salt thereof (paragraph [0006]). There is no suggestion in the reference to provide a polymer particle of a polymer having an acid value of from 30-120 mgKOH/g.

In contrast, the claimed invention is directed to a water-based ink in which the water-insoluble polymer has an acid value of 30-120 mgKOH/g. As this is a claim limitation which

is not suggested by the reference, the claimed invention is clearly not rendered obvious by this reference.

The official action speculates that the description of 0-10% of monomers could effect the acid number which would render an acid number of 30-120 inherent. Applicant respectfully submits that there is no suggestion of providing a polymer having an acid number as claimed as the reference does not require any acidic monomer to be present.

Moreover, the amounts of acidic monomer used in Examples 1.1-1.9 appearing on page 6 of only 1 wt.% is so low as to not suggest providing a polymer having an acid number of 30-120 mgKOH/g. As there is no suggestion of having an acid number as claimed and the examples clearly do not provide any motivation to have enough acid monomer to have an acid number as claimed, the claimed invention is clearly not obvious over these references and accordingly withdrawal of the rejections under 35 U.S.C. §103(a) is respectfully requested.

The rejection of claims 1-6 under 35 U.S.C. §103(a) over EP 117,2421 in view of Sakakibara et al. is respectfully traversed.

Applicant notes that Sakakibara et al. has a filing date of December 2, 2003, after Applicant's priority date of December 27, 2002 and accordingly as the secondary reference is not available as prior art the rejection based on the combination of references cannot be sustained and should be withdrawn.

The remaining rejections of claims 1-3 and 5-6 under 35 U.S.C. §102(b) over Nguyen, U.S. 5,990,202, of claims 1-2 and 5 under 35 U.S.C. §102(e) over Gore et al., U.S. 2003/0055178 in view of the evidence of Ishizuka et al., U.S. 2002/0025994 and of claims 1-3 and 5-6 under 35 U.S.C. §103(a) over Nguyen et al. in view of Sakakibara et al. are respectfully traversed.

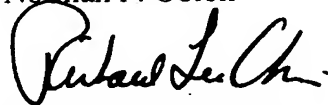
As previously noted, the Official Action recognizes that Nguyen et al. and Gore et al. fail to disclose the claim element of the acid number of the water-insoluble polymer. As claim 1 as presently amended now recites an acid number of 30-120 mgKOH/g, a claim limitation not found in the primary references, the claimed invention is clearly neither anticipated nor made obvious from these references and accordingly withdrawal of the rejections under 35 U.S.C. §102(b), 35 U.S.C. §102(e) and 35 U.S.C. §103(a) are respectfully requested.

Applicant submits that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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